

ABSTRACT

The present invention provides an apparatus for measurement of Raman scattered radiation comprising. The apparatus comprises at least one source of
5 electromagnetic radiation for producing an electromagnetic radiation beam characterized by a narrow spectral width, an integrating cavity having an interior and an exterior, wherein a sample is placed in said interior. The integrating cavity further having at least one port for insertion of the sample in the interior and for transmission of the electromagnetic radiation into and out from the interior, the at least one port
10 extending from the exterior to said interior of said integrating cavity. The integrating cavity also comprises a first optical element for transmitting the electromagnetic radiation into the interior of the integrating cavity through the at least one port, and a second optical element for collecting Raman scattered electromagnetic radiation from the sample through the at least one port. The apparatus also comprises a spectrum
15 analyzer for determining spectral composition of the Raman scattered electromagnetic radiation, a detector for measuring the Raman scattered electromagnetic radiation; and a system for determining concentration of at least one chemical compound from the measured Raman scattered electromagnetic radiation. The apparatus may also comprise a radiation expanding element. A method for measuring the concentration
20 of one or more chemical compounds in a sample using Raman scattering is also provided.